Battelle/BAI Platform Partnership with The University of Iowa

• Key to the success of the Battelle/BAI Platform investments will be the integration of Battelle/BAI Platforms with the Strategic Plan for Research at Iowa's major research universities.

• At The University of Iowa, the Battelle/BAI Platforms are fully integrated with one of our key major initiatives to create a **NIH funded Clinical Translational Research Center.**

• A major goal of The University of Iowa **NIH Clinical Translational Research Center** is:

- to stimulate the development of new entrepreneurial ventures between the University, biotechnology companies and communities across the State of Iowa

Battelle/BAI Platform Partnership with University of Iowa

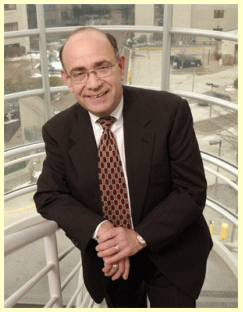
Battelle/BAI Platforms The University of Iowa is leading with industry partners:

- Drug Discovery and Development
- BioMedical Imaging
- Genomic Medicine
- Biodefense/Biosecurity (co-leaders with ISU)

Battelle/BAI Platform: Drug Discovery and Development

Platform Co-Chairs

Chris Nelson, Ph.D.
Worldwide President
Kemin Industries



Jordan Cohen, Ph.D.
Dean, College of Pharmacy
University of Iowa

- This platform will create a public/private research and development organization to work with industrial and university scientists to stimulate new product development and promote IP transfer for the benefit of Iowa in the human health field.

Battelle/BAI Platform: Drug Discovery and Development

Potential Projects:

Title: Diagnostics and Therapeutics Platform for Age-related Macular Degeneration

Partners

Optherion, Inc., David Scheer, Scheer and Company**;** Advanced Vision Therapies, Inc., Asper Ophthalmics, Pfizer Global Research & Development, The University of Iowa

Outcome: Estimates place the potential annual treatment/prevention **market in excess of $4 billion**.

Title: Molecularly Targeted Radiopeptide Therapy for Cancer

Partners: BioSynthema, Neoprobe, NewLink Genetics, The University of Iowa Comprehensive Cancer Center

Outcome: Start up Iowa company: **BioSynthema to move to Iowa**

Title: New Antimycotics from Marine (micro)Organisms

Partners: Kemin Pharma, The University of Iowa and Iowa state University

Outcome: With more than 3 million cases per year in the US in 2000 with the current treatment **market estimated at $5B**

Battelle/BAI Platform: Drug Discovery and Development

Molecularly Targeted Radiopeptide Therapy for Cancer

This project will work to commercialize therapies that will target cancers such as melanoma, carcinoid, and prostate in adults as well as neuroblastoma and brain tumors in children.

This is a unique opportunity to move a biotech company (BioSynthema) to Iowa

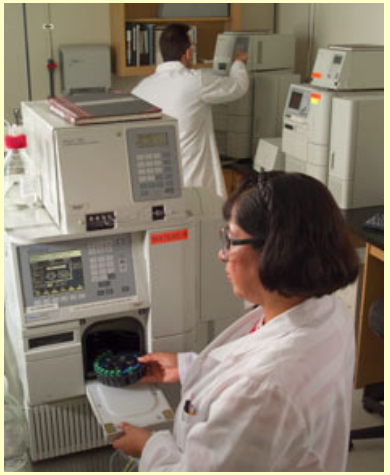
BioSynthema has the expertise to design and synthesize peptides for human therapeutic use.

Battelle/BAI Platform: Drug Discovery and Development

Leveraged Funding by Project

Diagnostics and Therapeutics Platform for Age-related Macular Degeneration

2006 - ~$1.25M NIH Federal funding
2006 - $1M private/venture investment funding



Molecularly Targeted Radiopeptide Therapy for Cancer

2006 - Combined funding of $100,000 from Novartis Pharmaceuticals, Inc., the University of Iowa Foundation, and UI Holden Comprehensive Cancer Center

New Antimycotics from Marine (micro)Organisms

2006 - Kemin, $350,000/yr for 3 years
UI, $50,000/yr for 3 years

Battelle/BAI Platform: Genomic Medicine

The University of Iowa

IDT® INTEGRATED DNA TECHNOLOGIES, INC.

Platform Co-Chairs

Industry Leader

Joe Walder, M.D., Ph.D.
CEO and President
Integrated DNA Technologies, Inc. (IDT)

Academic Leader

Val C. Sheffield, M.D., Ph.D.
Howard Hughes Investigator
Carver College of Medicine
University of Iowa

This platform will develop projects aimed at overcoming current obstacles to gene-directed therapy and medical care including:

- **Affordable, rapid genetic testing**
- **Identification of study participants**
- **Information management**
- **Availability of animal models**

Battelle/BAI Platform: Genomic Medicine

Potential Projects:

Title: Bioinformatics for the Study of Human Diseases

- **Partners**: Bio::Neos, The University of Iowa
- **Outcomes**: Expansion and development of Bio::Neos, a new Iowa based start-up.

Title: National Genetic Testing Laboratory for Inherited Eye Diseases

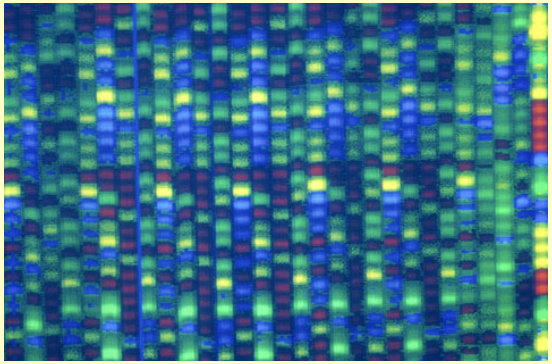
- **Partners**: Foundation Fighting Blindness and Alcon Laboratories (Fort Worth, TX), Bio::Neos, The University of Iowa
- **Outcomes**: Affordable, rapid genetic testing for all known inherited forms of blindness including age-related macular degeneration and glaucoma.

Title: High-Throughput Animal Model Facility

- **Partners**: Alcon Laboratories and Techspace, Inc. (Monona, IA), The University of Iowa
- **Outcomes**: Opportunity for expanded partnership with Foundation Fighting Blindness and Alcon Laboratories.

Battelle/BAI Platform: Genomic Medicine

Bioinformatics for the Study of Human Diseases



Industry Partner: Bio::Neos, Inc.

- Bioinformatics software company
- Spin-off from University of Iowa research

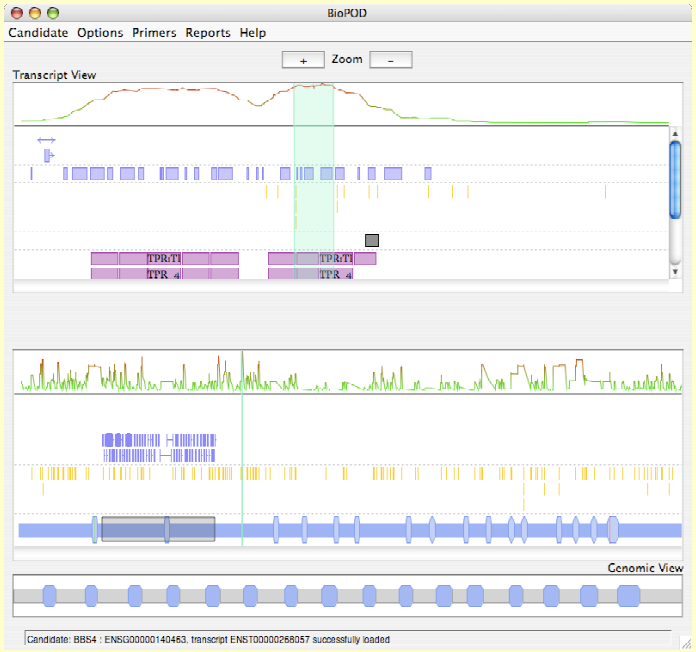
•Bio::Neos provides

- Commercial software derived from proof of concept work used in University of Iowa research
- A conduit for commercializing future software developed at The University of Iowa
  - Research labs do not have the resources to develop viable commercial grade software.

Platform: Bioinformatics for the Study of Human Diseases

Bio::Neos

- Potential ROI
- Bioinformatics Growth
  - New field, but increasingly important for the pharmaceutical industry
  - Possibility for large growth
- Bio::Neos solutions can be marketed globally
  - Large pharmaceuticals
  - Biotech research companies
  - Academic research groups
- Bioinformatics growth would complement other biotech growth throughout Iowa



Battelle/BAI Platform: Genomic Medicine

Leveraged Funding by Project

Bioinformatics for the Study of Human Diseases

2006 - NIH Federal funding

2006 - private/venture investment funding for Bio::Neos

National Genetic Testing Laboratory for Inherited Eye Diseases

2006 - NIH Federal Funding

2006 - Foundation Fighting BlindnessFoundation Fighting potentially match BAI's support up to a maximum of $400,000

High-Throughput Animal Model Facility

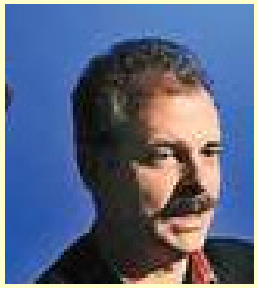
2006 - Alcon Laboratories, potentially match BAI's support up to a maximum of $400,000

Battelle/BAI Platform: Biomedical Imaging

THE UNIVERSITY OF IOWA

CIVCO MEDICAL INSTRUMENTS

Platform Co-Chairs



Industry Leader

Charles Klasson
CIVCO Medical
Kalona, IA

Academic Leader

Laurie Fajardo, M.D.
Chair, Dept. of Radiology
University of Iowa

- Academic and commercial imaging research and development in Iowa
- Leverage Iowa's technology leadership areas in imaging and allied disciplines
- Identify, define and prioritize infrastructure investment "portfolio" opportunities
- Attract capital, encourage/create "spin-off" companies → private sector jobs in Iowa
- Battelle Report: Imaging → niche opportunity

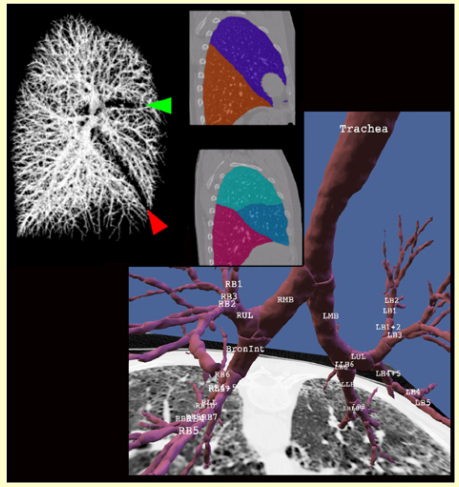
Battelle/BAI Platform: Biomedical Imaging

Isotopes for Cancer Imaging and Therapy

Partners: Pharmacy Services of the Quad Cities, The University of Iowa Department of Radiology, UIHC PET Imaging Center
Outcome: Develop a new company that specifically leverages existing infrastructure, faculty/staff resources, and technological innovations at The University of Iowa to produce, market and distribute essential and novel imaging radiopharmaceuticals for the diagnosis and treatment of cancer within the State of Iowa and nationally.

TITLE: Quantitative Imaging of Iowa (QI^2)

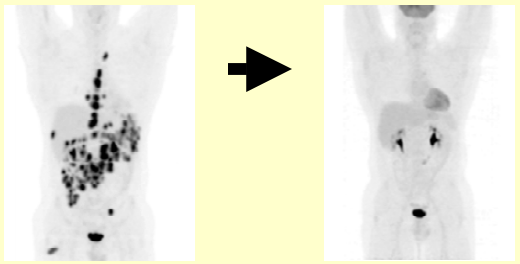
Proposed Partners: VIDA Diagnostics, Ferraris Respiratory, QI^2 (a spin-off company from members of The University of Iowa Colleges of Medicine and Engineering)
Outcome: This effort will establish a new company that will provide services which take advantage of medical imaging for outcomes and safety studies. The company will offer a comprehensive clinical trials service, linking existing and new start-up companies in the area of medical image analysis together with the UI, where significant core facilities and intellectual critical mass already exist for image data handling, quality control and image assessment. The initial focus will leverage Iowa's international leadership in lung imaging.



Battelle/BAI Platform: Biomedical Imaging

Isotopes for Cancer Imaging and Therapy

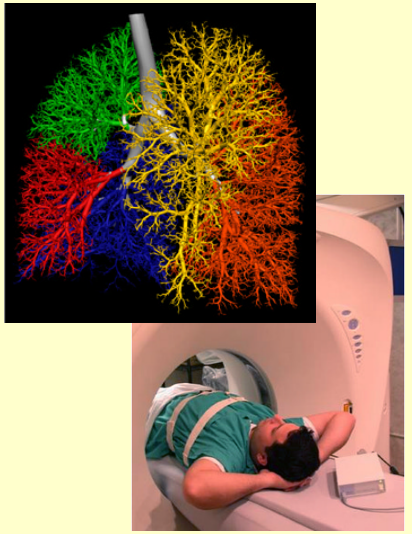
Initial funding request is to secure new radionuclide accelerator to be located in existing UIHC facilities. Create isotope handing facilities at Oakdale Research Park. Estimated initial new jobs is 5-7 at $50K salary range. Program to become self-sustaining within 3 years. Leverage production and processing through NCI preclinical grant ($150K/yr), $1M+ Federal Cancer Research, and PET Center operations ($2M/yr). Serve State of Iowa and national markets. Estimated growth at 10-15% per year.



Pre-therapy Imaging **Post-therapy Imaging**

Quantitative Imaging of Iowa (QI²)

Initial funding request is to develop the infrastructure including regulatory clearances, hardware for data storage and transmission, and to establish the links with international imaging centers of excellence with offices centered at Oakdale Research Park. Estimated initial new jobs is 5-10 new jobs at $50-250K salary range. Program to become self-sustaining within 3 years. Leverage: image processing expertise of VIDA Diagnostics, Pulmonary Function Testing and Core Labs expertise of Ferraris, and Clinical Trials and Imaging expertise of The University of Iowa along with $20M+ research dollars from the NIH.



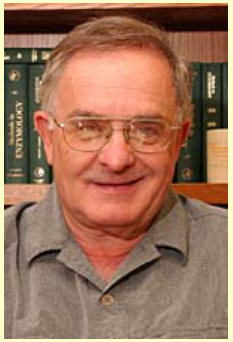
Battelle/BAI Platform: Biodefense

The University of Iowa

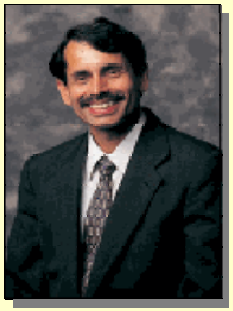
Institute for Food Safety & Security
Iowa State University

Global Vet Link
Official On-Line, eHealth Certificate System

Academic Co-Leaders



Michael Apicella, M.D.
Professor and Chair
Dept. of Microbiology
Carver College of Medicine University of Iowa



Manjit Misra, Ph.D.
Director, IFSS

Iowa State University

Industry Leader

Kevin Maher
President
Global Vet Link

Platform—The platform for biodefense will focus on deploying the strengths of Iowa's institutions in human, animal, and plant disease prevention, protection, and treatment to establish an integrated approach to securing the environment, food production systems, and human health and safety.